



TRIGONOMETRY

$\sin \theta = \frac{\text{opp}}{\text{hyp}}$ $\cos \theta = \frac{\text{adj}}{\text{hyp}}$ $\tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{\text{opp}}{\text{adj}}$ $\cot \theta = \frac{\cos \theta}{\sin \theta}$ $\csc \theta = \frac{1}{\sin \theta}$ $\sec \theta = \frac{1}{\cos \theta}$

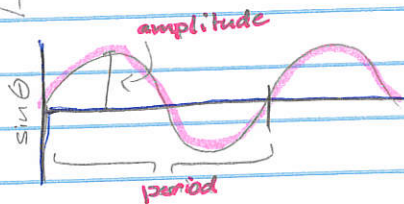
- upward θ - angle of elevation 

- downward θ - angle of depression 

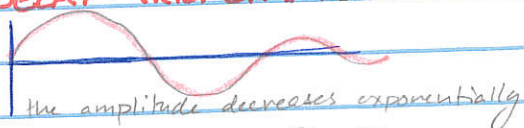
- ANGLE CONVERSION:

↳ radians $\cdot \frac{180}{\pi} = \text{degrees}$

↳ degrees $\cdot \frac{\pi}{180} = \text{radians}$



DELAY • TRIG EXAMPLES



$\begin{array}{l} \text{15} \\ \backslash \\ \theta \\ / \\ \text{9} \end{array}$ $\sin \theta = \frac{12}{15} = \frac{4}{5}$ $\cos \theta = \frac{9}{15} = \frac{3}{5}$ $\tan \theta = \frac{12}{9} = \frac{4}{3}$

$\begin{array}{l} \text{h} \\ \backslash \\ 30^\circ \\ / \\ \text{5} \end{array}$ $\sin 30^\circ = \frac{y}{h}$ $\cos 30^\circ = \frac{4}{5} \rightarrow \cos 30^\circ = h \rightarrow \underline{5.773 = h}$ $\tan 30^\circ = \frac{5}{h} \rightarrow 5 \tan 30^\circ = y \rightarrow \underline{2.886 = y}$

$\begin{array}{l} \text{x} \\ \backslash \\ \theta 49^\circ \\ / \\ \text{h} \end{array}$ $\sin 49^\circ = \frac{7.5}{h} \rightarrow \frac{7.5}{\sin 49^\circ} = h \rightarrow \underline{29.94 = h}$ $\tan 49^\circ = \frac{7.5}{x} \rightarrow \frac{7.5}{\tan 49^\circ} = x \rightarrow \underline{6.52 = x}$

INVERSE TRIG

$\sin^{-1}(x) = \theta \in \text{angle}$
 $\frac{\text{ratio of sides}}$

$\sqrt{\arcsin(x) = \theta \in \text{angle}}$
 $\frac{\text{ratio of sides}}$

★ $\sin^{-1} \neq \frac{1}{\sin x}$